



A Nordic work environment complement to Value Stream Mapping (VSM) for sustainable patient flows at hospitals – A NOVO Multicenter study

Winkel, Jørgen; Birgisdóttir, Birna Dröfn ; Dudas, Kerstin ; Edwards, Kasper; Gunnarsdóttir, Sigrún ; Harlin, Ulrika ; Jarebrant, Caroline ; Johansson Hanse, Jan

Published in:

Abstract book - 6th NOVO Symposium: Sustainable Health Care: Continuous Improvement of Processes and Systems

Publication date:

2012

Document Version

Publisher's PDF, also known as Version of record

[Link back to DTU Orbit](#)

Citation (APA):

Winkel, J., Birgisdóttir, B. D., Dudas, K., Edwards, K., Gunnarsdóttir, S., Harlin, U., Jarebrant, C., & Johansson Hanse, J. (2012). A Nordic work environment complement to Value Stream Mapping (VSM) for sustainable patient flows at hospitals – A NOVO Multicenter study. In *Abstract book - 6th NOVO Symposium: Sustainable Health Care: Continuous Improvement of Processes and Systems* (pp. 57-58)

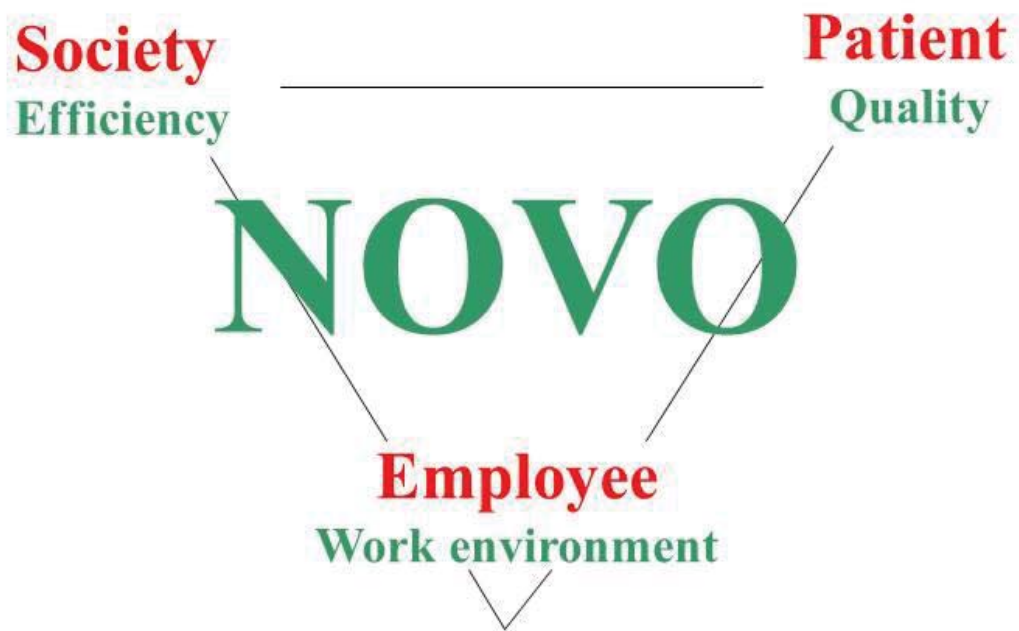
General rights

Copyright and moral rights for the publications made accessible in the public portal are retained by the authors and/or other copyright owners and it is a condition of accessing publications that users recognise and abide by the legal requirements associated with these rights.

- Users may download and print one copy of any publication from the public portal for the purpose of private study or research.
- You may not further distribute the material or use it for any profit-making activity or commercial gain
- You may freely distribute the URL identifying the publication in the public portal

If you believe that this document breaches copyright please contact us providing details, and we will remove access to the work immediately and investigate your claim.

6th NOVO Symposium



Stockholm, 15-16 November 2012



**Karolinska
Institutet**



KTH Teknik och hälsa



**Stockholms
universitet**

Multicenter study:

A Nordic work environment complement to Value Stream Mapping (VSM) for sustainable patient flows at hospitals – A NOVO Multicenter study

Jørgen Winkel^{1,2}, Birna Dröfn Birgisdóttir³, Kerstin Dudas^{4,5}, Kasper Edwards², Sigrún Gunnarsdóttir⁶, Ulrika Harlin⁷, Caroline Jarebrant^{7,1}, Jan Johansson Hanse⁸,

¹ *Dept. of Sociology and Work Science, University of Gothenburg, Gothenburg, Sweden*

² *Dept. of Management Engineering, Technical University of Denmark, Denmark*

³ *School of Business, Reykjavik University, Iceland*

⁴ *Sahlgrenska University Hospital, Gothenburg, Sweden*

⁵ *Sahlgrenska Academy, Institute of Health and Care Science, University of Gothenburg, Gothenburg, Sweden*

⁶ *Faculty of Nursing, University of Iceland, Reykjavík, Iceland*

⁷ *Swerea IVF, Mölndal, Sweden*

⁸ *Nordic School of Public Health NHV, Gothenburg, Sweden*

The Nordic Council of Ministers (NCM) granted 2007-09 a project with the aim to establish and develop a Nordic Network for scientists regarding research on work environment and efficiency in the health care sector ('the NOVO network'). The vision is a "Nordic Model for sustainable systems" in health care. A "Sustainable system" is here defined as the joint consideration of competitive performance and working conditions in a long-term perspective (Westgaard & Winkel, 2009, 2011). A preliminary project plan for a Nordic Multicenter project focusing a specific aspect of the vision was developed as part of the above mentioned NCM project. This was entitled: "A Nordic work environment complement to Value Stream Mapping (VSM) for sustainable patient flows at hospitals – A NOVO Multicenter study".

Development of production systems in healthcare is at present to an increasing extent based on Lean Production ideas. In the Lean terminology "value-adding work" (VAW) represents the portion of process time that employees spend on actions that create value as perceived by the customer (Liker 2004). The complementary part is "non-VAW" or "waste" as the general Lean term of non-value-adding activities.

In healthcare VSM is a common Lean tool used to identify and minimize waste (Keyte & Locher, 2004). It is a participatory tool, i.e. those affected by this type of rationalization are performing the analyses and subsequently suggesting the interventions. Participation has been shown to be crucial to obtain ownership of the suggested interventions and thereby increase impact. In addition, VSM has been shown to be a powerful rationalization tool. However, the resulting interventions may imply physical work intensification and impaired psychosocial work environment if the proportion of VAW is increased and management issues are not properly considered. In the rationalization process both physical and psychosocial working conditions should therefore be integrated to obtain a competitive performance in a long term perspective. In practice, this is rarely done. Thus, health of the employees and system performance goals often end up on a collision course with short-term performance demands as the winner (e.g. Winkel & Westgaard 1996, Westgaard & Winkel 2011).

A management style based on dialog between the parties seems to be crucial in order to consider both competitive performance and health issues as part of the same intervention process (Westgaard & Winkel 2011). Due to this, it is hypothesized that the Nordic countries have special opportunities to develop sustainable production systems. This hypothesis is based on the presence of "The Nordic model" which has regulated industrial relations in our part of the world (Guðmundsson 1993). It has evolved gradually during more than hundred years in the light of our special historical circumstances.

During the period 2002-10 an ergonomic intervention process tool (ErgoVSM) was developed in a series of Swedish projects, based on existing scientific evidence and in close co-operation with Swedish industry and the healthcare sector. It is based on the well-established VSM tool. But now it also considers health issues, i.e. risk factors for musculoskeletal and mental health in addition to reduction of waste (Jarebrant et al 2004, 2009). This requires a high degree of consensus between the parties and it is presumed that the Nordic countries with a common anchoring in "The Nordic model" offer the best prerequisites for this kind of research and practice. A prototype of ErgoVSM is now available (Jarebrant et al 2010a, b), but proper validation and further development are needed. As part of the NCM-funded NOVO project 2009, Sweden suggested that this could be performed within the healthcare sector as a Nordic Multicenter study. NCM now grants a Nordic co-ordination of the national studies in Denmark, Iceland and Sweden.

The final delivery will be a common Nordic version of the process tool ErgoVSM comprising the work from survey to development and implementation of solutions. We aim to deliver two booklets: a Manual and a Workbook for intervention processes towards increased sustainability of patient flows based on our specific Nordic opportunities. In addition, country-specific discrepancies will be considered in the guide.

The Multicenter Study is still in an initial phase with few results. However, our preliminary observations indicate marked national differences in handling of the VSM and ErgoVSM tools as well as generation of intervention proposals. Previous experience of Lean in the healthcare sector and in particular VSM seems to be a key modifier (cf. Jarebrant et al, Edwards & Winkel and Dröfn Birgisdóttir & Gunnarsdóttir, abstracts in the present Session). This represents a particular challenge in a research study validating the impact of the ErgoVSM compared to VSM regarding impact on performance and aspects of the work environment. This issue will be presented and discussed in relation to the specific Lean experiences within the healthcare sector in Denmark, Iceland and Sweden as well as at the investigated wards. At a general level the significance of such experience seems to be a key issue in the on-going discussions on "pros et cons" regarding Lean and sustainability.

Financial support: Nordic Council of Ministers and national grants.